Performance Evaluation Of Interrupt-Driven Kernels In Gigabit Networks

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Summary

The paper presents models and analytical techniques for studying system behavior of an interrupt-driven kernel due to high packet arrival rate found in gigabit networks. An analytical study is presented describing the impact of high interrupt rate on system performance. The performance is studied in terms of throughput, latency, and system power. Equations are derived for system throughput, latency, power, and stability condition. Results from both reported experimental findings and simulations show that our analytical model is valid and gives a good approximation. To the best of the authors' knowledge, this work is the first of its kind to study analytically the impact of interrupts on system performance.